What is claimed is:

Claim 1. A method comprising:

computing a plurality of random excitations based on a plurality of random noise samples;

storing the random excitations;

detecting for a voice activity in a signal;

encoding the signal to create a non active voice signal if no voice activity is detected including

computing for a non active voice frame a current excitation based on one of the random excitations;

re-using the random excitations to compute the current excitations for other non active voice frames;

Claim 2. The method of claim 1 further comprising padding the current excitation with zeros if a gain of the non active voice frame is zero.

Claim 3. The method of claim 2 further comprising generating random adaptive codebook parameters and fixed codebook parameters.

Claim 4. The method of claim 3 further comprising:

generating a random adaptive excitation based on the random adaptive codebook parameters;

computing a sum of the random adaptive excitation and one of the random excitations; and

rescaling the current excitation with the sum of the random adaptive excitation and one of the random excitations.

Claim 5. The method of claim 4 further comprising:

computing a fixed codebook gain based on the fixed codebook parameters;

updating the current excitation with an algebraic-code-excited linear-prediction excitation; and

looping for the other non active voice frames.

Claim 6. The method of claim 1 wherein the random noise samples are Gaussian noise samples.

Claim 7. A storage medium comprising content, which when executed by an accessing machine, causes the accessing machine to implement a method comprising:

computing a plurality of random excitations based on a plurality of random noise samples;

storing the random excitations;

detecting for a voice activity in a signal;

encoding the signal to create a non active voice signal if no voice activity is detected including

computing for a non active voice frame a current excitation based on one of the random excitations;

re-using the random excitations to compute the current excitations for other non active voice frames;

Claim 8. The storage medium of claim 7 comprising content, which when executed by an accessing machine, causes the accessing machine to implement the method further comprising padding the current excitation with zeros if a gain of the non active voice frame is zero.

Claim 9. The storage medium of claim 8 comprising content, which when executed by an accessing machine, causes the accessing machine to implement the method further comprising generating random adaptive codebook parameters and fixed codebook parameters.

Claim 10. The storage medium of claim 9 comprising content, which when executed by an accessing machine, causes the accessing machine to implement the method further comprising:

generating a random adaptive excitation based on the random adaptive codebook parameters;

computing a sum of the random adaptive excitation and one of the random excitations; and

rescaling the current excitation with the sum of the random adaptive excitation and one of the random excitations.

Claim 11. The storage medium of claim 10 comprising content, which when executed by an accessing machine, causes the accessing machine to implement the method further comprising:

computing a fixed codebook gain based on the fixed codebook parameters;

updating the current excitation with an algebraic-code-excited linear-prediction excitation; and

looping for the other non active voice frames.

Claim 12. The storage medium of claim 7 wherein the random noise samples are Gaussian noise samples.

Claim 13. An apparatus comprising:

an encoder coupled to a communication channel wherein the encoder is configured to compute a current excitation based on one of a plurality of random excitations for a non active voice frame and to re-use the random excitations to compute the current excitations for other non active voice frames;

a voice activity detector coupled to the encoder to detect for a non active voice signal;

a decoder coupled to the communication channel, the decoder further comprising a comfort noise generator to generate comfort noise if the voice activity detector detects the non active voice signal.

Claim 14. The apparatus of claim 13, the comfort noise generator further configured to pad the current excitation with zeros if a gain of the non active voice frame is zero.

Claim 15. The apparatus of claim 14, the comfort noise generator further configured to generate random adaptive codebook parameters and fixed codebook parameters.

Claim 16. The apparatus of claim 15, the comfort noise generator further configured

to generate a random adaptive excitation based on the random adaptive codebook parameters;

to compute a sum of the random adaptive excitation and one of the random excitations; and

to rescale the current excitation with the sum of the random adaptive excitation and one of the random excitations.

Claim 17. The apparatus of claim 16, the comfort noise generator further configured

to compute a fixed codebook gain based on the fixed codebook parameters;

to update the current excitation with an algebraic-code-excited linear-prediction excitation; and

to loop for the other non active voice frames.

Claim 18. The apparatus of claim 13 wherein the random excitations are based on a plurality of random noise samples.

Claim 19. The apparatus of claim 18 wherein the random noise samples are Gaussian noise samples.

Claim 20. A storage medium containing content which, when executed by an accessing machine, causes the accessing machine to generate:

an encoder coupled to a communication channel wherein the encoder is configured to compute a current excitation based on one of a plurality of random excitations for a non active voice frame and to re-use the random excitations to compute the current excitations for other non active voice frames;

a voice activity detector coupled to the encoder to detect for the non active voice signal;

a decoder coupled to the communication channel, the decoder further comprising a comfort noise generator to generate comfort noise if the voice activity detector detects the non active voice signal.

Claim 21. The storage medium of claim 20, the comfort noise generator further configured to pad the current excitation with zeros if a gain of the non active voice frame is zero.

Claim 22. The storage medium of claim 21, the comfort noise generator further configured to generate random adaptive codebook parameters and fixed codebook parameters.

Claim 23. The storage medium of claim 22, the comfort noise generator further configured

to generate a random adaptive excitation based on the random adaptive codebook parameters;

to compute a sum of the random adaptive excitation and one of the random excitations; and

to rescale the current excitation with the sum of the random adaptive excitation and one of the random excitations.

Claim 24. The storage medium of claim 23, the comfort noise generator further configured

to compute a fixed codebook gain based on the fixed codebook parameters;

to update the current excitation with an algebraic-code-excited linear-prediction excitation; and

to loop for the other non active voice frames.

Claim 25. The storage medium of claim 20 wherein the random excitations are based on a plurality of random noise samples.

Claim 26. The storage medium of claim 25 wherein the random noise samples are Gaussian noise samples.

Claim 27. A method comprising:

encoding a non active voice signal including

computing a current excitation based on one of a plurality of random excitations for a non active voice frame; and

re-using the random excitations to compute the current excitations for other non active voice frames.

Claim 28. The method of claim 27 further comprising padding the current excitation with zeros if a gain of the non active voice frame is zero.

Claim 29. The method of claim 28 further comprising generating random adaptive codebook parameters and fixed codebook parameters.

Claim 30. The method of claim 29 further comprising:

generating a random adaptive excitation based on the random adaptive codebook parameters;

computing a sum of the random adaptive excitation and one of the random excitations; and

rescaling the current excitation with the sum of the random adaptive excitation and one of the random excitations.

Claim 31. The method of claim 30 further comprising:

computing a fixed codebook gain based on the fixed codebook parameters;

updating the current excitation with an algebraic-code-excited linear-prediction excitation; and

looping for the other non active voice frames.

Claim 32. The method of claim 27 wherein the random excitations are based on a plurality of random noise samples.

Claim 33. The method of claim 32 wherein the random noise samples are Gaussian noise samples.

Claim 34. An apparatus comprising:

an encoder configured to compute a current excitation based on one of a plurality of random excitations for a non active voice frame and to re-use the random excitations to compute the current excitations for other non active voice frames;

Claim 35. The apparatus of claim 34, the encoder further configured to pad the current excitation with zeros if a gain of the non active voice frame is zero.

Claim 36. The apparatus of claim 35, the encoder further configured to generate random adaptive codebook parameters and fixed codebook parameters.

Claim 37. The apparatus of claim 36, the encoder further configured

to generate a random adaptive excitation based on the random adaptive codebook parameters;

to compute a sum of the random adaptive excitation and one of the random excitations; and

to rescale the current excitation with the sum of the random adaptive excitation and one of the random excitations.

Claim 38. The apparatus of claim 37, the encoder further configured

to compute a fixed codebook gain based on the fixed codebook parameters;

to update the current excitation with an algebraic-code-excited linear-prediction excitation; and

to loop for the other non active voice frames.

Claim 39. The apparatus of claim 34 wherein the random excitations are based on a plurality of random noise samples.

Claim 40. The apparatus of claim 39 wherein the random noise samples are Gaussian noise samples.